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# Spaceport News

*America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.*

http://www-pao.ksc.nasa.gov/kscpao/snews/snewstoc.htm John F. Kennedy Space Center

## Diverse Shuttle missions set for new year

On the heels of making space history in 2001 by completing the first phase of the International Space Station (ISS) assembly in orbit, the Space Shuttle will continue a string of space firsts during six missions planned for 2002.

"In the past 12 months, we've completed some of the most challenging space flights in history," said Space Shuttle Program Manager Ron Dittemore. "In the next year those challenges will continue with missions just as complex. The team continues to excel safely and successfully, and 2002 promises to be just as rewarding as the past year."

**(See SHUTTLE, Page 7)**

# KSC 2002: Looking forward

**By Roy Bridges Jr.**

The first year of the new millennium, 2001, wasn't exactly what we all expected. Clearly we were all surprised and shocked by the events of Sept. 11.

While none of us can change that event, we are in control of how we respond, how we move forward.

At KSC, we moved forward by having the best ever Combined Federal Campaign (CFC).

Many of you heard the summary at our recent holiday celebration, and the numbers were fantastic.

Every organization exceeded their dollar goal for the first time and we had a very high participation rate of 80 percent. Overall, we raised more than $306,000 and 34 percent , or $105,000, is designated for people here in Brevard County.

It makes me feel good in my heart when I give to organizations like the CFC, and obviously many of you feel the same way.

Many of us at KSC also read in the newspapers that the Space Station was in big trouble in 2001.

*"Our response to challenges like we had this year is to move forward vigorously with the exciting mission our Nation and the world has entrusted to us."*

**ROY BRIDGES JR.**
CENTER DIRECTOR

This may have come as a shock to you since we were performing at an extraordinarily high level to assure one of the best all around technical performances in the history of human space flight.

In the 17 months since the Russians launched the Service Module, Zvezda, on July 12, 2000, our partners and we have launched 20 complicated and intricately choreographed missions to the International Space Station (ISS).

All of these missions (nine U. S. and 11 Russian), ending with the landing of STS-108 on Dec. 17, 2001, were almost perfect in their execution.

To date, we have put up 153 tons of hardware including 85 tons processed here at KSC.

Clearly, we had a great run of missions in 2000 and 2001. That things went so well is a real credit to the professional team at KSC.

**(See DIRECTOR, Page 6)**

## Inside



# HESSI scheduled to launch Jan. 24

At press time, NASA's High Energy Solar Spectroscopic Imager (HESSI) was set at press time for launch Jan. 24 during a two-hour launch window beginning at 3:21 p.m. EST.

HESSI will be deployed from a Pegasus XL vehicle after being deployed from an L1011 aircraft off Florida's East Coast.

The HESSI mission has been delayed several times since March 2000, when the vehicle was inadvertently damaged during testing.

HESSI's primary mission is to explore the basic physics of particle acceleration and explosive energy release in solar flares. It will act as a single spin-stabilized spacecraft in a low-altitude orbit inclined 38 degrees to the Earth's equator.

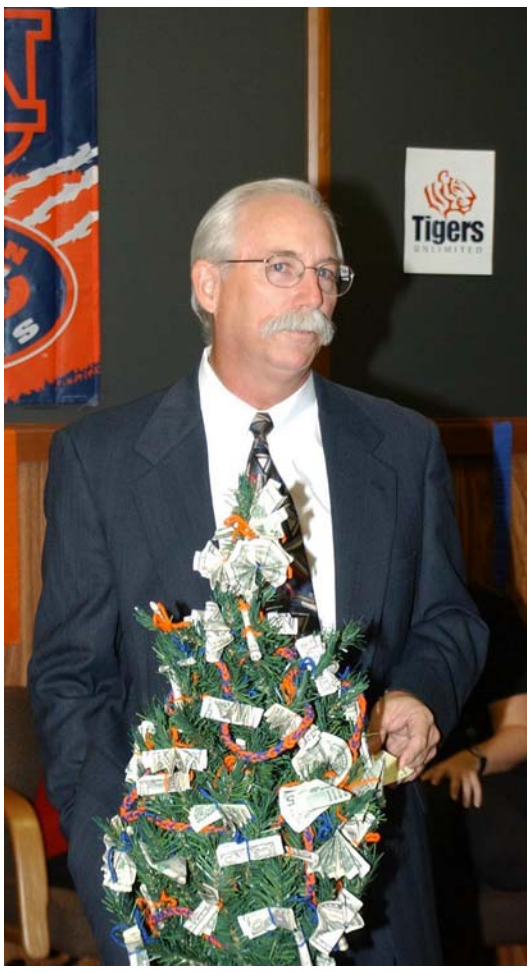
The only instrument on board the spacecraft is an imaging spectrometer with the ability to obtain high fidelity color movies of solar flares in X-rays and gamma rays.

HESSI is a Small Explorer mission and is managed by Goddard Space Flight Center under the Explorer Program.

The High Energy Solar Spectroscopic Imager (HESSI) is seen during its early integration and testing at the University of California at Berkeley.

## Recognizing Our People

# Bill Holden retires from NASA




Bill Holden was honored at his retirement party for his years of dedicated service.

William Holden recently retired from his post as NASA chief of the Propellants, Logistics and Services Office in the Spaceport Services directorate at Kennedy Space Center.

Holden was responsible for managing Agency fluids procurement activities, Center logistics management and Center services.

He also chaired the KSC 2000 move committee, leading the move of about 1,000 employees in the major reorganization.

Holden's diversity of responsibility affected all core services the government provides to KSC and his leadership touched upon the lives of many employees on Center, said Gary Wistrand, chief of Center Services.

"Bill worked for me for five years. He was a superb manager and supervisor," Wistrand said. "He's also taken on a number of special projects over and above. He'll be greatly missed."

Holden was appointed chief of the office in November 1995.

In that role, Holden was responsible for agency-wide propellant and specialty fluids procurement as the agency principle center for fluids management, logistics and transportation policy and implementation, library services and programs, mail and postal services, food services, records management and staging, publications, scientific and technical information management, printing, graphics, travel services, railroad operations and maintenance, and GSA vehicle management for all KSC and tenant organizations.

*"I am very proud to have worked at KSC all these years. I feel I have been a part of history in the making."*

**BILL HOLDEN**
FORMER CHIEF,
PROPELLANTS, LOGISTICS AND SERVICES OFFICE

He had previously served as deputy division chief of the Project Engineering and Integration Division in Installation Operations since June1990.

Holden joined NASA in 1967, in the Manufacturing Engineering Laboratory at Marshall Space Flight Center and came to Kennedy Space Center in 1968.

During his career at KSC, he worked in numerous engineering management and staff positions, including two years as a member of the Executive Staff to the KSC Center Director.

Holden received numerous awards including two "Silver Snoopy" awards and two NASA Exceptional Service Medals.

"I am very proud to have worked at KSC all these years. I feel I have been a part of history in the making," Holden said.

Born in Atlanta, Ga., Holden is a graduate of Phillips High School in Birmingham, Ala. He received a bachelor's degree in chemistry from Berry College, Mt. Berry, Ga., and an MBA in management from Florida State University.

## Toastmaster Speechcraft program graduates

"Speechcraft" is a program designed to teach public speaking skills to members and non-members of Toastmasters. During this program, participants have the opportunity to present three to six speeches, introduce other speakers and serve as evaluators. KSC Toastmasters Club 3695 has sponsored this event with a major success. Rita Willcoxon and her Spaceport Engineering and Technology group participated in the class and the first graduation ceremonies took place Dec. 11. The participants were presented with their completion certificates by Lee McLamb, Toastmasters Area 11 governor; Sharon Lowry, club president; and Frank Merceret, Speechcraft coordinator.

# NASA again to support FIRST

NASA and its corporate partners will support robotics education for about 200 high schools again this year by sponsoring teams that will participate in a national robotics competition.

The NASA-sponsored teams will join hundreds of others in constructing robots that will compete in regional contests and a final, national competition in April 2002 at Walt Disney World's EPCOT Center, Orlando.

A regional competition will be held at Kennedy Space Center Visitor Complex March 7-9.

Students at the competing schools will be challenged to design a robot that will complete a specified set of tasks.

Students also will organize marketing, public relations, fund-raising and management groups to compete for the award-winning solution.

The annual national robotics competition is conducted by the non-profit FIRST (For Inspiration and Recognition of Science and Technology) in Manchester, N.H., and sponsored by NASA and a number of corporations.

Each year FIRST presents a game problem and identical parts kits to each team. The teams, composed of high school students and professional engineers and scientists, work together to construct their robots for the competition.

The engineers come from NASA, private industry, other government agencies and universities.

Each year's competition is different, so returning teams always have a new challenge.

NASA-sponsored teams will receive a total of about $1.5 million.

The group of NASA-sponsored teams includes many from disadvantaged schools. For a complete list of the awards issued by NASA, see **http://robots.larc.nasa.gov/**

A complete list of the regional events, corporate sponsors and other details are included on the FIRST Web site at: **http://www.usfirst.org/**


## Adopt-A-Child draws donations

Workers from the Joint Base Operations Support Contract (JBOSC) team of companies helped load Christmas toys for the Adopt-A-Child Program. The toys – purchased and donated by about 2,800 JBOSC employees – were presented Dec. 13 to Bob Morin, the District administrator for the Florida Dept. of Children and Families, at the department's Titusville office. In four years of partnering with DCF, JBOSC employees have provided toys and clothing to 1,600 children.

# Inside the Canis

Manager Joe Beatrice observes system engineer Gary Sulick giving direction for final alignment of the crane hook to hoist the beam in the Canister Rotation Facility. Dana Meredith and Charlie Gould prepare for the hook and beam mate.

Technicians Dana Meredith and Charlie Gould prepare to install a huge locking pin through the spreader bar and crane hook. The bar is used to rotate the payload canister in the Canister Rotation Facility.

Jim Rush completes a quality assurance inspection of the hoist sling and the canister trunnion before hookup for canister lift.

Crane operators Tony D'Alessandro and John Carlo listen to direction from system engineer Jack McDonald for canister movement.

Rotating a Space Shuttle payload canister and the payloads it houses is no easy task, even for the highly skilled Multi Mission Support Equipment team, better known as the "Can Crew."

The size of each 65-foot-long payload canister is but one of the challenges for the Boeing Co. team.

The weight of each of the two canisters is another: 107,000 pounds empty. A canister containing a payload typically weighs about 140,000 pounds.

Even so, the canisters periodically must be rotated to vertical or horizontal, depending on payload processing requirements. For example, processing of the STS-109 mission payload for Hubble Space Telescope Servicing Mission 3B has required several rotations during payload processing and testing.

A special building – the Canister Rotation Facility (CRF) – was built in 1993 in the Industrial Area to help the team handle the challenges of canister rotation. The 142-foot high bay includes a 100-ton bridge crane and other specialized equipment required for lifting the canister.

"To begin with, the team must carefully transport the canister on the roadways between the particular payload processing facility and CRF, keeping the canister level using the canister transporter's complex leveling system," said Skip Chauvin, Boeing operations engineer. "After the canister arrives at the CRF, it takes about six hours to prepare for, complete and gear down from the rotation."

Each rotation for the STS-109 mission is particularly challenging because the payload must be keep air conditioned even during the rotation. Typically, payloads are disconnected from the air-conditioning system during the relatively

# Canister Rotation Facility

Engineer Bobby Wright acknowledges steering direction from the forward canister observer.



Above, a walkdown of the Canister Rotation Facililty (CRF) is completed prior to the payload canister entering the facility. At left, with facility power connected, the canister is ready to enter the CRF.

Tom Neal and Steve Lay secure ducts during the movement of the payload canister. Fred Parisi and Jeff Griffin install holddown guides on the transporter deck for it to receive the canister.

Boeing technician Dave Griner verifies clearance of the Canister Rotation Facility door opening and the top of the payload canister before it enters the CRF.

The canister is lowered into its receiving pedestals.

brief period when rotation actually occurs.

During the early years of the Space Shuttle program, canister rotation was performed in the Vehicle Assembly Building (VAB).

Two cranes and much hands-on maneuvering was required to rotate the canister. In addition, a 15-mile round trip from payload processing facilities located in the Industrial Area to the VAB was required.

"The CRF was specifically designed for canister rotation, so there's a huge improvement in the operation, which our technicians and engineers really appreciate," said Gary Sulick, a system engineer on the team. "We're using the right tool for the right job."

In addition to being rotated at the CRF, the payload canisters are cleaned, configured and maintained in the CRF complex area, which includes an administrative building and two low bays.

The CRF complex-based Can Crew also maintains other mission support equipment, including the strongback, conditioned cargo transportation enclosure, MPLM support vehicle, payload environmental transportation system, single pallet rotation device and the payload transportation rotation device.

"People think of us for the canisters, but that's just part of our job," Chauvin said.

*"The CRF was specifically designed for canister rotation, so there's a huge improvement in the operation, which our technicians and engineers really appreciate."*

**GARY SULICK**
BOEING SYSTEM ENGINEER

# DIRECTOR ...

*(Continued from Page 1)*

You all worked extremely well with all of our many partners at other centers, with industry and academia here and abroad, and with our international partners to pull off this tremendous show of technical excellence.

It also was a great demonstration of working through some very complex technical and management issues within a 16-nation partnership. Congratulations on a job very well done!

So what about this issue of the ISS being in trouble?

Clearly, the ISS Program has been challenged to do a better job of cost estimating, and I believe that we at KSC can make a big difference in helping the ISS Program be a success so that we can move forward and allow it to demonstrate its full potential.

We have four very complex ISS missions planned by the combined Shuttle/ISS team in 2002.

We will begin the construction of the trusses this year that will provide power and thermal control for the Station as well as a "trolley" for the Station robotic arm.

These will be very exciting and event-packed missions. Getting them done right the first time will go a long way toward helping the ISS Program.

Let's focus on these missions as well as using our intellect and teamwork to recommend innovative ways to reduce the costs through better planning, scheduling and execution of tasks.

Of course, this is not all! We kick off the New Year with the fourth Hubble maintenance mission.

These are always incredible to behold. Our astronauts working with the scientists and engineers on the ground have provided a premiere telescope that has generated a tremendous surge of knowledge about the magnificent universe surrounding us.

This next mission will upgrade instruments that have the potential to add even more to this record of achievement.

Then there is an exciting research mission on STS-107 to help scientists accomplish a backlog of research in microgravity. All of these Shuttle missions will be prepared by the greatest payload processing and launch team in the world!

We also had a great year in Expendable Launch Vehicles in 2001, successfully launching six missions deploying ten payloads and inaugurating the new Kodiak Island Launch Site.

These robotic missions are going to bring us a wealth of new knowledge about Mars and the Earth/Solar environment.

Sometimes we forget the mission of these launches, since it takes awhile after launch to begin to gather the science and publish the data, but then surprising things happen.

This year we were in awe of the spacecraft landing on an asteroid, and the photos of the nucleus of a comet.

These missions are just fantastic in terms of their payoff, but they don't begin that payoff without a successful launch.

Our launch team is the best in the business and their response to the New Year will be to plan for 12 missions next year.

None of these will happen or be successful without a lot of tough, detailed work to assure we have everything right before T-0.

You can count on the KSC Team to do it right!

As NASA's Spaceport Technology Center, we are making great progress as a team member on the new Space Launch Initiative program. We are leading the "operations area" and have some exciting work planned and in progress.

We are also constructing the first phase of the new Advanced Technology Development Complex (ATDC) at Launch Complex 20 for hazarous testing with high flow rate cryogenics.

We are well under way with the construction of SERPL (Space Experiment Research and Processing Laboratory), which you have no doubt seen on your way to work. This world-class facility will be the ground floor of ISS research and is a product of our partnership with the State of Florida.

And, yes, we will be implementing some very challenging new initiatives that came out of the Strategic Resources Review (SRR). Shuttle privatization and federal spaceport will continue to be studied in detail and implementation plans will be developed.

And there will probably be other initiatives as well, although most will pale in comparison with these two in terms of scope.

Some of you may be concerned about how these may affect you personally and professionally. I understand that.

I will ask some of you to get involved with these activities to assist with detailed planning. Also, I will continue to try my best to keep you informed.

Clearly, though, you must stay focused on your current activities so they remain successful. That is the most important point.

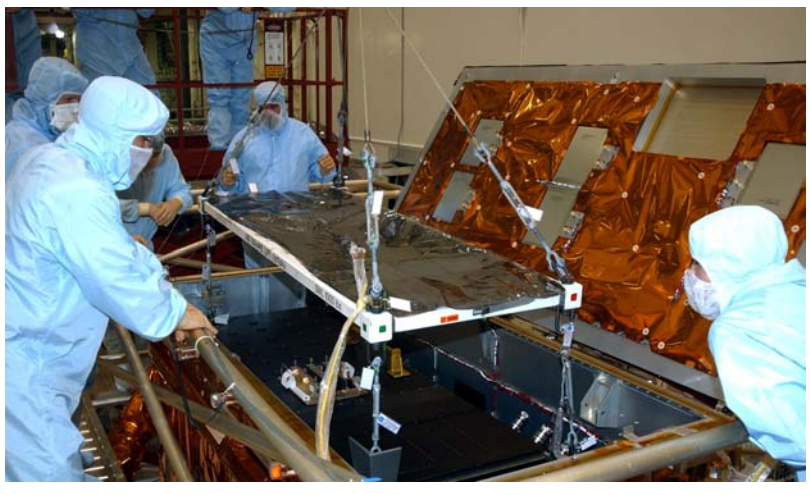
There is so much more I could say, but for the sake of brevity, I will not include it all in this article.

Our response to challenges like we had this year is to move forward vigorously with the exciting mission our nation and the world has entrusted to us.

When we are successful, it provides hope and inspiration to others because our work is so challenging and difficult. Let's continue to work together to show everyone just what we can do.

In 2002, I wish you all success and fulfillment in your personal and professional activities and I look forward to working with you on the exciting challenges ahead.

And as always, please remember to practice safe and healthy behaviors at home and work.



Workers in the Vertical Processing Facility watch while the Advanced Camera for Surveys (ACS) is lowered. The ACS is part of the payload on the Hubble Space Telescope Servicing Mission, STS-109. The mission is scheduled for launch no earlier than Feb. 21. Its goal is to service the HST, replacing Solar Array 2 with Solar Array 3, replacing the Power Control Unit, removing the Faint Object Camera and installing the ACS, installing the Near Infrared Camera and Multi-Object Spectrometer (NICMOS) Cooling System, and installing New Outer Blanket Layer insulation.

The Expedition Three crew clasp hands in a show of unity before they depart KSC for Houston. From left to right are Commander Frank Culbertson and cosmonauts Vladimir Dezhurov and Mikhail Tyurin. The three returned to Earth as passengers aboard the orbiter Endeavour, which landed at KSC at 12:55 p.m. EST, Dec. 17, after completing mission STS-108. Expedition 3 spent 129 days on the International Space Station.

*"These will be very exciting and event-packed missions. Getting them done right the first time will go a long way toward helping the ISS Program."*

**ROY BRIDGES JR.**
CENTER DIRECTOR

# O'Keefe hopes to reinvigorate mission

**By Sean O'Keefe**

As we begin a new year, I am honored to be here, working with you as NASA's new Administrator.

As we enter 2002, we are sensitive to the events of the past year. The senseless tragedy of Sept. 11 illustrates the fact that there's no true way of telling what a new year will bring.

However, we now have the chance to pause and take stock, and to think about the possibilities of the year to come.

As we work today to live with new resolve, let us commit ourselves to ignore the trivial anxieties of life and focus on those things most important – our families and our friends. If the year 2001 taught us anything, it's that every day we are blessed with life, health and love is a good day.

In the wake of the terrorist attacks, we are all amazed at the extraordinary sense of national resolve that emerged from the destruction in New York, Washington and Pennsylvania. President Bush has inspired a renewed sense of patriotic purpose. And with that sense of purpose, he has instilled in all Americans a resolve to take care of one another.

Sean O'Keefe was sworn in as NASA's 10th Administrator Dec. 21, following his nomination by President George W. Bush Nov. 14, and confirmation by the U.S. Senate Dec. 20.

We also learned that with challenge comes opportunity.

It is up to each and every one of us to exploit the opportunities of 2002. The strength of this nation's space program comes from your determination. No matter the obstacle, the people of NASA have a legacy of overcoming adversity. It is that deep determination and commitment to excellence that will see us through the challenges of the coming year.

As I move into this new role as NASA Administrator, we face a substantial "to do list." It's going to require a lot of hard work and some difficult decisions. But with you, I know we will reinvigorate the Agency's mission of discovery and conquer new challenges.

NASA leads a unique expedition that is vital to the future security and vitality of our nation and humanity.

As we celebrate this season of renewal, let us resolve to face the problems, step up to the challenges, exploit the opportunities, and continue to pioneer the frontiers of air, space and knowledge.

In 1899, Theodore Roosevelt said "Far better it is to dare mighty things, to win glorious triumphs, even though checkered by failure, than to take rank with those poor spirits who neither enjoy much nor suffer much, because they live in the gray twilight that knows not victory nor defeat."

And in the words of Todd Beamer, that heroic American who thwarted the hijackers of United Airlines Flight 93 Sept. 11, "Let's roll!"

## SHUTTLE ...

*(Continued from Page 1)*

The coming year will be marked by the Shuttle fleet matriarch Columbia's return to space on the first non-ISS Shuttle flight in more than two years.

In addition, flights by Atlantis and Endeavour will haul more than 50 tons of additional components to the ISS and more than three dozen new experiments and two new laboratory racks.

Discovery will remain on the ground in 2002 for standard maintenance and inspections.

In 2002, NASA plans to break a record set only last year for the most spacewalks ever conducted in a single year.

From Space Shuttles alone, 15 spacewalks are planned, coupled with seven spacewalks that are planned by crews from the International Space Station.

In 2001, 18 total spacewalks were conducted — 12 from the Shuttle and six from the Station.

In 2002, NASA plans to break a record set only last year for the most spacewalks ever conducted in a single year. From Space Shuttles alone, 15 spacewalks are planned coupled with seven space walks that are planned by crews from the International Space Station.

"Spacewalks will never become routine, but we have entered an era of space exploration now where they will continue to become more common," said Milt Heflin, chief flight director. "But no matter how many or how often crews leave their spacecraft, each EVA remains just as exciting to prepare and conduct and just as rewarding to complete."

Columbia will begin the new year with a flight to the Hubble Space Telescope on mission STS-109, the fourth mission to service the space telescope since its launch in 1990.

Five spacewalks will be conducted during the flight to install an advanced new camera system, attempt to reactivate an existing infrared instrument system, install new solar arrays and install a new power controller. The mission will extend the lifetime and capabilities of the now-famous orbiting telescope.

When Columbia launches, it also will become the second Shuttle ever to fly with a new "glass cockpit," installed as part of maintenance and modifications completed in 2001.

The new cockpit has 11 full-color, flat-panel displays that replace 32 gauges and electromechanical instruments and four cathode-ray tube monitors in the old cockpit.

The new cockpit is lighter, uses less power and sets the stage for a future "smart cockpit" that will feature new, more intuitive displays to reduce pilots' workloads during critical periods.

In addition, the following flights are planned in 2002:

- STS-110, mid-spring: Atlantis will deliver to the ISS the first of three giant truss segments to be launched in 2002.
- STS-111, late spring: Endeavour will carry to the ISS the fifth resident crew, the Leonardo logistics module filled with experiments and supplies, and a mobile base system — the second part of the mobile platform for the Station's innovative Canadarm2 robotic arm.
- STS-107, mid-summer: Columbia will fly an international mission dedicated to microgravity science that will carry a double Spacehab module filled with 32 experiments involving 59 separate investigations.
- STS-112, late summer: Atlantis will make its second visit of the year to the ISS carrying the first starboard side truss segment.
- STS-113, early fall: Endeavour will deliver the sixth resident crew and a port side truss segment to the Station, completing almost half the length of the final truss.

# Spaceport, range technology groups gather

The Advanced Spaceport Technology Working Group (ASTWG) will hold its second general meeting during the week of Jan. 14 at Kennedy Space Center.

The ASTWG will be joining with its sister group, the Advanced Range Technology Working Group (ARTWG) in a week-long joint conference at the Debus Conference Center at the KSC Visitor Complex.

The ASTWG meeting will be held on Jan. 15-16 and the ARTWG meeting will be held Jan. 17-18.

Members of the groups include leaders from NASA, the Air Force, other federal agencies, state spaceports, commercial spaceports, industry and academia.

**The Advanced Spaceport Technology Working Group (ASTWG) and the Advanced Range Technology Working Group (ARTWG) meet to share information and address potential needs for next-generation spaceport technology.**

The groups meet to share information and address potential needs for next-generation spaceport technology.

The major impetus for the KSC-based working groups came from findings of the Interagency Working Group (IWG) co-chaired by the Office of Science and Technology Policy and the National Security Council.

IWG's White House-sponsored study is titled "The Future Management and Uses of the U.S. Space Launch Bases and Ranges."

The IWG determined that more focus on the development of range technology to support next-generation reusable launch vehicles and expendable launch vehicles would be needed if ground systems are to keep pacewith the development of the flight systems.

For more information on the ASTWG/ARTWG Conference, visit **http://science.ksc.nasa.gov/projects/astwg/astwg2.htm**

## Former President visits KSC

Former President Jimmy Carter and his wife, Rosalyn, pictured with Center Director Roy Bridges, visited Kennedy Space Center Jan. 3. They received a commemorative plaque.

## Boeing contract extended

NASA's Kennedy Space Center has extended the period of performance of the Payload Ground Operations Contract (PGOC) held for the last 15 years by The Boeing Co. at Kennedy Space Center. The contract expired Dec. 31.

This cost-plus-award-fee extension through March 2002 (with one-month options until July 2002) is valued at $59.5 million and brings the total contract value to almost $1.9 billion.

The extension provides for coverage of payload ground support, test and integration, and de-integration for Space Shuttle and Expendable Launch Vehicle payloads.

This action ensures uninterrupted program support through the PGOC and bridges the gap in performance between Dec. 31, and the awards of the follow-on contracts to PGOC – the Checkout, Assembly and Payload Processing Services (CAPPS) contract and the Expendable Launch Vehicle Integrated Services (ELVIS) contract.

The original PGOC contract was initiated in January 1987 with McDonnell Douglas Space and Defense Systems.

## Incumbent Dynamac wins contract

NASA's Kennedy Space Center has awarded a cost-plus-award-fee/ performance-based contract to incumbent Dynamac Corp. of Rockville, Md., to perform a variety of life science and personnel services at the Center.

Under the contract, Dynamac will provide services that include medical planning operations for the Space Shuttle and International Space Station; environmental compliance and stewardship; life sciences payloads operations; agency occupational health services; biological sciences; life sciences payload development; workforce protection, fitness and musculoskeletal rehabilitation; and education outreach.

The contract features a three-year, nine-month basic period of performance beginning Jan. 1, 2002, and includes two options for a potential seven-year, nine-month contract term. The basic contract's estimated cost plus award-fee is more than $54 million with a potential value that exceeds $119 million over the entire period.

The work will be performed at KSC and at NASA facilities located on Cape Canaveral Air Force Station.

John F. Kennedy Space Center

Spaceport News

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